

Mailing date: November 5, 2002

Office Action
(Notification of Reasons for Refusal)

Patent Application Number: 2000-556398
Applied Patent Law Section: 29(2)

This patent application shall be rejected for the reasons below. The applicant has opportunity to submit an argument for this office action within three months from this notification has been sent.

Detailed Action

Claim Rejections - Patent Law Section 29(2)

The inventions as claimed in Claims 1-36 could easily have been made, prior to the filing of the patent application, by a person with ordinary skill in the art to which the invention pertains, on the basis of the inventions that were described in publications distributed in Japan or elsewhere prior to the filing of the patent application. Patents shall not be granted for such inventions under Patent Law Section 29(2).

(1) Claims 1-9, 11-15 and 17-34 are rejected under Patent Law Section 29(2) as being anticipated over Fukazawa '473, Tanigawa '957, Tsuji '563, and Nakazawa '747.

Fukazawa shows a semiconductor device in which a semiconductor chip, bonding wires and leads are resin sealed where the lead surface is wire bonded with the chip and the backside of a die pad and leads are exposed through the backside of a package. (Esp. see Figs.2 and 3.)

Tanigawa, Tsuji, and Nakazawa show the techniques to enhance adherence between a sealing resin and a lead by employing recessed and/or protruding parts on the side surface of leads and die pads, which are equivalent to the "reentrance portion" of this invention.

It should also be considered in Fukazawa to improve adherence between a sealing resin and a lead. Therefore it would have been obvious to combine the

teachings of Fukazawa and Tanigawa/Tsuji/Nakazawa, the combination producing nothing beyond what are plainly suggested by the references.

(2) Claims 10 and 16 are rejected under Patent Law Section 29(2) as being anticipated over Fukazawa, Murayama '401 and Hamano '762.

To improve adherence between a sealing resin and a lead by employing irregularities on leads and/or die pads is already well known in the art.

(3) Claims 35 and 36 are rejected under Patent Law Section 29(2) as being anticipated over the following 6 cited publications.

Etching and stamping were commonly used in manufacturing leading frames before this application was filed.

Cited Publication

1. Fukazawa Hiroyuki - JP Patent Office Gazette H5-129473
2. Tanigawa Takahiro, et al. - JP Patent Office Gazette S60-195957 ✓
3. Tsuji Masahiro - JP Patent Office Gazette H6-140563
4. Nakazawa Tsutomu, et al. - JP Patent Office Gazette H1-251747
5. Murayama Toshihiro - JP Patent Office Gazette H10-163401
6. Hamano Seiji - JP Patent Office Gazette S63-067762

Records of the Prior Art Search Result

Patent classification: IPC 7th ed. H01L 23/12, 23/28
H01L 23/50

Prior Art: JP Patent Office Gazette H10-012773
JP Patent Office Gazette S63-054759

The records of the prior art search result do not constitute the reasons for refusal.